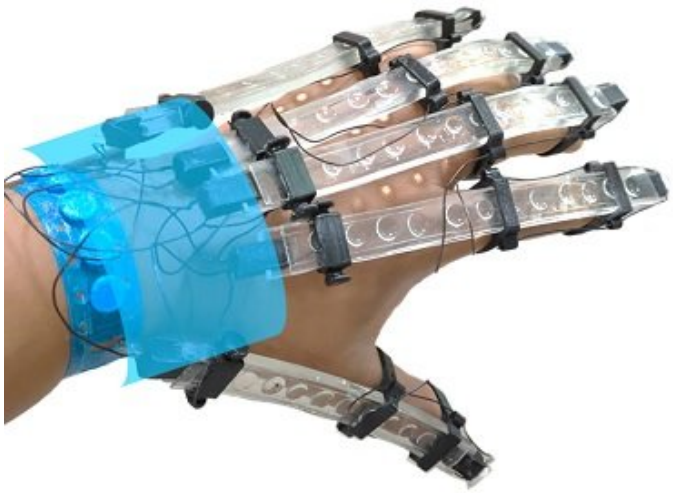
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IISc develops 3D printed gloves for rehabilitating stroke patients

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The device is expected to cost less than Rs 1,000



The Department of Physics at the Indian Institute of Science (IISc), Bengaluru has developed a soft, wearable device that exploits the fundamental properties of light to sense a patient's limb or finger movements. The customisable, 3D printed gloves can be remotely controlled, opening up the possibility of teleconsultation by physiotherapists.

The team has developed a mechanism by which customisable wearables like hand gloves can be designed, 3D printed, and controlled remotely. The device can sense various hand and finger movements, and precisely detect parameters like pressure, bending angle and shape.

The researchers used a silicon-based polymer material that is transparent (facilitating manipulation of light), soft (for comfort and repeated use), and most importantly, 3D printed; it can therefore be customised to fit each patient's arm and fingers. The device can also capture and store data, and transmit it over the Internet, facilitating remote monitoring by clinicians or physiotherapists.

According to the researchers, the device has been tested for stability for over 10 months, and no loss of sensitivity or accuracy was found. The device has been entirely designed and manufactured in India, and is expected to cost less than Rs 1,000. A patent has been filed for the device and the researchers hope to launch it on the market soon. The approach can also be extended to applications like augmented reality and real-time monitoring of health parameters.